VARIATION IN WING VENATION OF FOUR ODONATES[1]

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ABSTRACT: Abnormal wing venation of four odonates is described.

DESCRIPTORS: Odonata, Aeschnidae, Lestidae, wing venation, oxygen concentration.

Two male specimens of *Anax junius* (Drury) collected in July, 1970, at a marsh in Presque Isle State Park, Erie, Pennsylvania, show variations in wing venation.

An adventitious crossvein parallel to the subcosta appears between the second and third antenodal crossveins in the left forewing of one male (Fig. 1) and a dichotomy of the third and fourth antenodal crossveins occurs in the right forewing of the other male (Fig. 2).

Two specimens of *Lestes* sp. collected at the same site and time as the specimens of *Anax junius* also show variations in wing venation. In one there is a dichotomy of cross veins in the

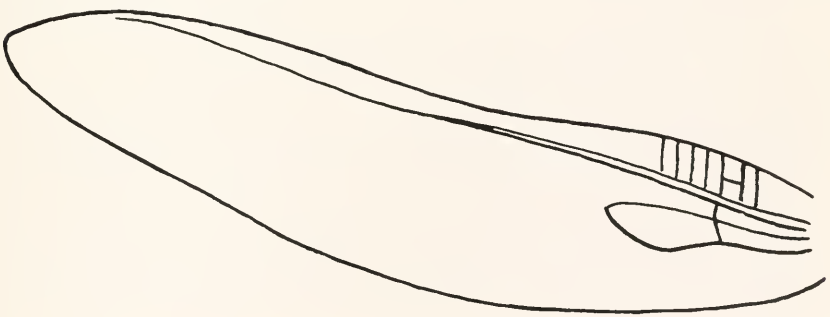

Fig. 1. Left forewing with adventitious crossvein between second and third antenodal crossveins in *Anax junius* male.

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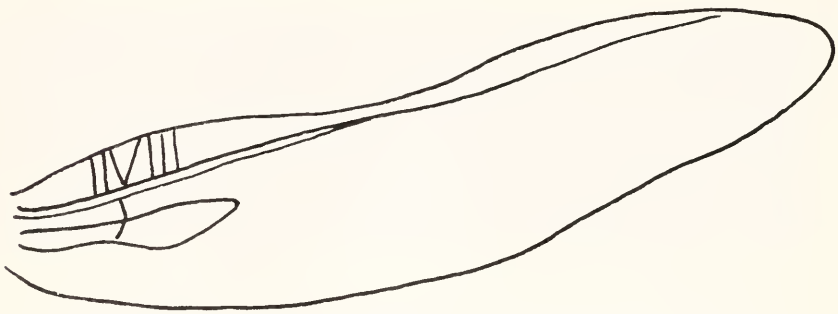

Fig. 2. Right forewing with dichotomy of third and fourth antenodal crossveins in *Anax junius* male.

postnodal veins of the left forewing and there is a similar dichotomy of sub-radial crossveins in the left forewing of the other specimen.

Considerable intraspecific variation in numbers of crossveins is not uncommon among primitive orders of insects. Chutter (1962) gives an excellent example of this within individual specimens of *Pseudoagrion vaalense* Chutter.

A further purpose of this note is to point out the interesting possibility for more research, in the light of Wiggleworth's (1954) work with *Rhodnius prolixus* Stal (Hemiptera: Reduviidae), which demonstrated that lowered oxygen concentration in the nymphal stage of this bug can stimulate the migration of tracheoles, increase tracheation, and consequently result in incipient wing veins in the adult; and with respect to the body of water – Lake Erie – which feeds the marsh, a body of water in which the concentration of oxygen has declined steadily since the late 1950's, concommittant with the increase in the levels of pollution (Ehrlich, 1970).

REFERENCES

Chutter, F.M. 1962. A new species of *Pseudoagrion* (Odonata: Zygoptera) with descriptions of the larvae of five other species belonging to the genus. Rev. Biol. Liston 3:171-198.

Ehrlich, Paul R. and Anne H. 1970. Populations, Resources and Environment. San Francisco: W.H. Freeman and Co. p. 383.

Wiggleworth, V.B. 1954. Growth and regeneration in the tracheal system of an insect, *Rhodnius prolixus* (Hemiptera). Q.J. Microsc. Sci. 95:115-137.